PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Application Number:	10/803,004
Confirmation Number:	4388
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Applicant:	Thomas F. BERKEY, Daniel P. FUOCO and Lawrence R. MILLS
Title:	IMAGING SYSTEM AND METHOD FOR DISPLAYING AND/OR RECORDING UNDISTORTED WIDE-ANGLE IMAGE DATA
Examiner:	David N. WERNER
Group Art Unit:	2621
Attorney Docket No.:	1281-81U (C4-1208)

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APPEAL BRIEF

Sir:

This Appeal Brief is submitted in support of the Notice of Appeal filed July 8, 2008, and in response to the Final Office Action dated May 8, 2008, wherein Appellant appeals from the Examiner's rejection of claims 1, 3-7, 10-14, 16-19 and 21-24.

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I. Real Party in Interest

The real party in interest is Sensormatic Electronics Corporation, which is the assignee of the subject application by virtue of assignment recorded on Reel/Frame 015118/0492 on March 17, 2004.

II. Related Appeals and Interferences

None.

III. Status of Claims

Claims 1, 3-7, 10-14, 16-19 and 21-24 are pending in this Application. Claims 1, 3-7, 10-14, 16-19 and 21-24 have been finally rejected, and it is from the final rejection of Claims 1, 3-7, 10-14, 16-19 and 21-24 that this Appeal is taken.

IV. Status of Amendments

The claims have not been amended subsequent to the imposition of the Final Office Action dated May 8, 2008.

V. Summary of Claimed Subject Matter

The present invention, as recited in independent Claims 1, 14 and 21 is directed toward a system and method for correcting, displaying and/or recording wide-angle image data, as described throughout the Specification including in the Summary of the Invention, paragraphs [0008 through 0012]. With respect to independent Claim 1, a system for correcting wide-angle image data is claimed. Referring to FIG. 1 and as described at least in Paragraphs [0020]

through [0036], a first input buffer is configured to store wide-angle image data (See FIG. 1; ¶ [0028]). An image data processor is operably coupled to the first input buffer (See FIG. 1) and configured to transform wide angle image data stored in the first input buffer into corrected image data on a pixel-by-pixel basis (¶¶ [0031], [0033]). An encoder is operably coupled to the image data processor (See FIG. 1) and configured to receive and encode the corrected image data in a format suitable for at least one of display and recording of corrected images (See. FIG. 1; ¶¶ [0034], [0036]). The corrected image data is transmitted from the image data processor to the encoder upon completion of each pixel transformation and is not stored in a buffer from the time of transformation by the image data processor until the time the undistorted image data is received by the encoder. (See FIG. 1; ¶¶ [0033], [0034], [0036]).

Independent Claim 14 recites a method for displaying and/or recording corrected image data from wide-angle image data. The method includes the steps of buffering wide-angle image data (See FIG. 1; (¶ [0028]), transforming the buffered wide-angle image data into corrected image data on a pixel-by-pixel basis (¶¶ [0031], [0033]), and transmitting the corrected image data to an encoder upon completion of each pixel transformation without buffering the corrected image data (See FIG. 1; ¶¶ [0033], [0034], [0036]). The method further includes the steps of encoding the corrected image data into one or more output signals [0036], and displaying and/or recording the output signals from the encoder (See FIG. 1; ¶ [0036]).

Independent Claim 21 recites a system for correcting wide-angle image data. Regarding the means-plus-function clauses of Claim 21, exemplary structure in the specification for performing the claimed functions is indicated {in brackets}. Referring to FIG. 1, and described at least in paragraphs [0028] through [0037], the claim recites means {input buffer 120} for storing wide-angle image data (See FIG. 1; ¶ [0028]), and means {image data processor 125} for

transforming wide angle image data stored in said storage means into corrected image data on a pixel-by-pixel basis, the image transformation means being operably coupled to said storage means (See FIG. 1, (¶¶ [0031], [0033]). The claim further recites means {encoder 135} for encoding the corrected image data into a format suitable for at least one of display and recording of corrected images (See. FIG. 1; ¶¶ [0034], [0036]). The corrected image data is transmitted from the image transformation means {image data processor 125} to the encoder means {encoder 135} upon completion of each pixel transformation without storing the corrected image data in a buffer from the time of transformation by the image transformation means {image data processor 125} until the time the corrected image data is received by the encoder means {encoder 135] (See FIG. 1; ¶¶ [0033], [0034], [0036]). The encoder means {encoder 135} is operably coupled to the image transformation means {image data processor 125} (See FIG. 1, ¶ [0034]).

VI. Grounds of Rejection to be Reviewed on Appeal

1. Claims 1, 4-7, 10-14, 17-19 and 21-24 were rejected under 35 U.S.C. §103(a) as being unpatentable over United States Patent No. 5,185,667 A to Zimmermann ("Zimmermann") in view of United States Patent No. 6,847,392 B1 to House ("House").
2. Claims 3 and 16 were rejected under 35 U.S.C. §103(a) as being unpatentable over Zimmermann in view of House as applied to Clams 1 and 145 and further in view of United States Patent No. 5,414,521 to Ansley ("Ansley").

VII. Argument

The Rejection of Claims 1, 4-7, 10-14, 17-19 and 21-24 under 35 U.S.C. §103(a)

Claims 1, 4-7, 10-14, 17-19 and 21-24 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Zimmermann in view of House. For convenience of the Honorable Board in addressing the rejections, dependent Claims 4-7 and 10-13 stand or fall together with independent Claim 1, Claims 17-19 stand or fall together with independent Claim 14, and Claims 22-24 stand or fall together with independent Claim 21.

A. The Examiner fails to cite a reference or combination of references disclosing each and every element of Applicants' Claimed Invention

Independent Claim 1 relates to a system for correcting wide-angle image data, and recites, in part, an image data processor operably coupled to said first input buffer and configured ***to transform wide angle image data*** stored in the first input buffer into corrected image data ***on a pixel-by-pixel basis*** (emphasis added).

Independent Claim 14 relates to a method for displaying and/or recording corrected image data from wide-angle image data, and recites, in part, the step of ***transforming the buffered wide-angle image data*** into corrected image data ***on a pixel-by-pixel basis*** (emphasis added).

Independent Claim 21 relates to a system for correcting wide-angle image data and recites, in part, means for ***transforming wide angle image data*** stored in said storage means into corrected image data ***on a pixel-by-pixel basis*** (emphasis added).

Thus, each independent claim, and the claims that depend from them, recites a data processor that is configured *to transform wide-angle image data into corrected image data on a pixel-by-pixel basis*. Neither of the cited references, either alone, or in combination, discloses such a feature.

The Examiner correctly asserts that Zimmermann is deficient in "performing a pixelwise transformation and directly outputting the results on a pixel-by-pixel basis" (Final Office Action, Page 5). Thus, each of the highlighted elements in Independent Claims 1, 14 and 21 are not present in Zimmermann. Yet, contrary to the Examiner's belief, even if the system of Zimmermann were somehow combined with the system disclosed in House, the resulting system would still not transform wide-angle image data into corrected image data on a pixel-by-pixel basis.

House is apparently cited for its alleged teaching of a system that is "transmitting image data from a processor on a pixelwise basis". (Final Office Action, Page 3). However, House *does not* disclose an image data processor that transforms wide angle image data, which is what is claimed. To the contrary, House, via a sampling process, contracts the narrow visual field image to make it coincide with that of the wide visual field image. (House, col. 6, lines 1-7). The sampling process "makes the magnitude of a pixel unit [of the narrow visual field] coincide with that of a pixel unit of the wide visual field image." (House, col. 7, lines 46-48). ***The wide angle image is not transformed in any way*** and certainly not on a pixel-by-pixel basis. Therefore, even with the addition of House, a combined system having the elements of Zimmermann and House does not disclose a system having a processor that transforms wide-angle image data into corrected image data on a pixel-by-pixel basis.

The Examiner states that House discloses that the "[m]apping of each pixel is performed to determine the depth of the pixels . . ." (Final Office Action, Page 5). Further examination of House reveals that the mapping of each pixel is not equivalent to the claimed "transformation of the wide angle image data . . . on a pixel-by-pixel basis". House compares the narrow visual field image 6 with the wide visual field image 5 and via a mapping scheme adjusts the magnitude

of a pixel unit *of the narrow visual field image* with that of the wide visual field image to produce a coincident pixel unit image set 302 (House, col. 8, lines, 44-49). In House, there is no transformation of wide angle image data, and there is certainly no transformation of wide angle image data on a pixel-by-pixel basis, which is what is recited in Claims 1, 14 and 21.

In sum, Zimmerman, by the Examiner's own admission, fails to disclose a pixelwise transformation of wide angle image data. House, as discussed above, also fails to disclose a pixelwise transformation of wide angle image data. Instead, House performs a sampling and mapping function on each pixel and contracts the narrow visual field image to coincide with the wide angle field image.

Concluding, the Examiner has failed cite a combination of references disclosing each and every element of Applicant's claims as required for a *prima facie* case of obviousness. Accordingly, the Examiner's rejection with respect to Claims 1, 4-7, 10-14, 17-19 and 21-24 should be reversed.

The Rejection of Claims 3 and 16 under 35 U.S.C. §103(a)

Claims 3 and 16 were rejected under 35 U.S.C. §103(a) as being unpatentable over Zimmermann in view of House as applied to Claims 1 and 14 above, and further in view of United States Patent No. 5,414,521 to Ansley. For convenience of the Honorable Board in addressing the rejections, dependent Claim 3 stands or falls together with independent Claim 1, and Claim 16 stands or falls together with independent Claim 14.

As discussed above, with respect to Independent Claims 1, 14 and 21, the systems of Zimmermann and House, whether taken alone or in combination, do not disclose each of the features recited in the claims. Particularly, a system combining the features of Zimmermann and House does not produce a processor that transforms wide angle image data on a pixel-by-pixel

basis. The inclusion of Ansley, apparently, for its alleged teaching of the use of a look-up memory table to store transformation calculation data, does nothing to correct the deficiencies in the cited references. A system that combines the features of Zimmerman, House, and Ansley, assuming such a system could be created, still does not disclose all of the elements recited in Claims 2 and 16, which depend from independent Claims 1 and 14, respectively, as discussed above.

Thus, the Examiner has failed cite a combination of references disclosing each and every element of Applicant's claims as required for a *prima facie* case of obviousness. Accordingly, the Examiner's rejection with respect to Claims 3 and 16 should be reversed.

VIII. Conclusion

For the reasons provided above as well as provided in the record, the claim rejections are believed to be improper and a result of clear error by the Examiner. Accordingly, pending Claims 1, 3-7, 10-14, 16-19 and 21-24 are believed to be in condition for allowance, and a reversal of the Examiner's rejections is respectfully requested.

The Commissioner is hereby authorized to credit overpayments or charge payment of any additional fees associated with this communication to Deposit Account No. 090457.

Respectfully submitted,

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APPENDIX A: CLAIMS ON APPEAL

1. A system for correcting wide-angle image data, said system comprising:

a first input buffer configured to store wide-angle image data;

an image data processor operably coupled to said first input buffer and configured to transform wide angle image data stored in the first input buffer into corrected image data on a pixel-by-pixel basis; and

an encoder operably coupled to said image data processor and configured to receive and encode the corrected image data in a format suitable for at least one of display and recording of corrected images, said corrected image data being transmitted from the image data processor to the encoder upon completion of each pixel transformation and not being stored in a buffer from the time of transformation by the image data processor until the time said undistorted image data is received by the encoder.

3. A system according to claim 1, further comprising:

a look-up table memory operably coupled to the image data processor, said look-up table memory being configured to store transformation calculation data to be used by the image data processor to transform wide angle image data stored in the first input buffer into corrected image data.

4. A system according to claim 1, further comprising:

a user input module operably coupled to the image data processor and configured to provide user command data to the image data processor.

5. A system according to claim 4, wherein:

said user input module is further configured to calculate a value based on user input, and to communicate said calculated value to the image data processor; and

said image data processor is further configured to use said calculated value to transform wide angle image data stored in the first input buffer into corrected image data.

6. A system according to claim 1, wherein said image data processor comprises a processing device, the processing device being at least one of a field programmable gate array and an application specific integrated circuit.

7. A system according to claim 1, further comprising a source of wide-angle image data operably coupled to said first input buffer.

10. A system according to claim 7, wherein said source of wide-angle image data comprises a video camera.

11. A system according to claim 10 wherein the video camera produces video signals in a standard format, the standard format being one of PAL, SECAM and NTSC.

12. A system according to claim 1, further comprising a monitor operably coupled to said encoder for displaying corrected images.

13. A system according to claim 1, wherein the wide-angle image data includes distortion and said image data processor transforms the wide-angle image data in the first input buffer into corrected image data that is substantially undistorted.

14. A method for displaying and/or recording corrected image data from wide-angle image data, said method comprising steps of:

buffering wide-angle image data;

transforming the buffered wide-angle image data into corrected image data on a pixel-by-pixel basis;

transmitting the corrected image data to an encoder upon completion of each pixel transformation without buffering the corrected image data;

encoding the corrected image data into one or more output signals; and

displaying and/or recording the output signals from the encoder.

16. A method according to claim 14, further comprising steps of:

storing transformation calculation data in a look-up table; and

using transformation calculation data stored in the look-up table to transform the buffered wide angle image data stored into corrected image data.

17. A method according to claim 14, further comprising steps of:

providing user command data to the image data processor; and

using the user command data to transform the buffered wide angle image into corrected image data.

18. A method according to claim 17, further comprising steps of:

calculate a value based on user command data; and

using said calculated value to transform the buffered wide angle image data into corrected image data.

19. A method according to claim 14 wherein the step of transforming the buffered wide-angle image data into corrected image data corrects distortion in the wide-angle image data such that the output signals are representative of a substantially undistorted image.

21. A system for correcting wide-angle image data, said system comprising:

means for storing wide-angle image data;

means for transforming wide angle image data stored in said storage means into corrected image data on a pixel-by-pixel basis, said image transformation means being operably coupled to said storage means; and

means for encoding the corrected image data into a format suitable for at least one of display and recording of corrected images, said corrected image data being transmitted from the image transformation means to the encoder means upon completion of each pixel transformation without storing the corrected image data in a buffer from the time of transformation by the image transformation means until the time the corrected image data is received by the encoder means, said encoder means being operably coupled to said image transformation means.

22. A system according to claim 1, wherein the encoded corrected data comprises an output signal, and wherein said image data processor transforms a pixel of said wide angle image data if the data for the pixel is required for the output signal.

23. A method according to claim 14, further comprising transforming a pixel of the wide-angle image data if the data for the pixel is required for the one or more output signals from the encoder.

24. A system according to claim 21, wherein the encoded corrected image data comprises an output signal, and wherein said image transformation means transforms a pixel of said wide angle image data if the data for the pixel is required for the output signal.

APPENDIX B: EVIDENCE APPENDIX

No evidence submitted pursuant to 37 C.F.R. §§ 1.130, 1.131, or 1.132 of this title or of any other evidence entered by the Examiner has been relied upon by Appellant in this Appeal, and thus no evidence is attached hereto.

APPENDIX C: RELATED PROCEEDINGS APPENDIX

Since Appellant is unaware of any related appeals and interferences, no decision rendered by a court or the Board is attached hereto.